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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/565,302

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EXAMINER

BARROW, AMANDA J

ART UNIT

PAPER NUMBER

1795

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/565,302	<b>Applicant(s)</b> SUDOH ET AL.	
	<b>Examiner</b> AMANDA BARROW	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 20 January 2006.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-37 are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claims 1-34, drawn to high density electrode.

Group II, claims 35-37, drawn to a lithium battery electrode having high electrolytic solution permeability.

The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I does not require that the electrode is used in a lithium battery having high electrolytic solution permeability, that the carbon fiber is in an amount of 0.2 to 20 mass%, or that the electrode has a capacity density of 100 mAh/g or higher as recited in Group II. The common subject matter among the groups is an electrode containing a fiber element 1 to 1,000 nm in diameter which does not make a contribution over the prior art (see EP 1191131 A1) which is listed on the international search report and which teaches that a negative electrode of a Li battery comprises a carbonaceous material and carbon fibers having a diameter of 1  $\mu\text{m}$  (namely, 100 nm) or less (please see the text of the first office action from the Chinese patent office which was supplied by the applicant). Accordingly, Groups I and II lack unity of invention.

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2. If Group I is elected, an election of species is required. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Species 1-1: claims 10-17, where the electrode active substance is a carbon material

Species 1-2: claim 18, where the electrode active substance is a Li alloy

Species 1-3: claim 19, where the electrode active substance is a lithium nitride material

Species 1-4: claims 20-27, where the electrode active substance is a metal oxide

Species 1-5: claim 28, where the electrode active substance is a metal sulfide

Species 1-6: claim 29, where the electrode active substance is an iron olivine compound

The following claim(s) are generic: 1-9 and 30-34.

In addition, if Species 1 or Species 4 is elected, an election of sub-species is required. This application contains claims directed to more than one sub-species of the generic invention.

These sub-species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The sub-species are as follows:

Species 1-1

*Sub-species 1-1-1:* claim 10, where the electrode active substance is a carbon material

*Subspecies 1-1-2:* claim 11, where the electrode active substance contains a carbon material that contains Si.

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*Subspecies 1-1-3:* claim 12, where the electrode active substance is a non-graphite carbon material and the bulk density of the electrode is 1.5 g/mL or more

*Subspecies 1-1-4:* claim 13, where the electrode active substance is carbon material that has a specific average roundness and average particle size

*Subspecies 1-1-5:* claims 14 and 16, where the electrode active substance is graphitic carbon material with a specific bulk density, average roundness and average particle size

*Subspecies 1-1-6:* claim 15, where the electrode active substance is a graphitic carbon material that contains boron

*Species 1-1-7:* claim 17, where the electrode active substance material is made out of a graphitic carbon material with specific crystalline structure, BET specific surface area, true density, etc.

#### Species 1-4

*Sub-species 1-4-1:* claim 20, where the electrode active substance is a silicon oxide material

*Sub-species 1-4-2:* claim 22, where the electrode active substance is a metal oxide that contains a tin oxide material

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*Sub-species 1-4-3*: claim 23, where the electrode active substance is a metal oxide that contains a cobalt oxide in an amount of 60 mass% or more

*Sub-species 1-4-4*: claim 24, where the electrode active substance is a metal oxide that contains a manganese oxide in an amount of 60% mass or more

*Sub-species 1-4-5*: claim 25, where the electrode active substance is a metal oxide that contains a mixture of a cobalt oxide and a manganese oxide in an amount of 80 mass % or more

*Sub-species 1-4-6*: claim 26, where the electrode active substance is a metal oxide that contains a nickel oxide

Claim 21 is generic to the sub-species listed above in species set 1-4.

3. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: the species define the electrode active material to be a multitude of materials including metal alloys, metal oxides, carbon materials, etc. The sub-species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the sub-species lack the same or corresponding special technical features for the following reasons: the sub-species under Species 1 define the carbon material to include graphitic carbon, non-graphitic carbon, carbon containing boron, carbon containing Si,

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etc., and the sub-species under Species 2 are different types of metal oxide compositions.

Accordingly, Species 1-7 lack unity of invention as do sub-species 1-2 under Species 1 and sub-species 1-6 under species 4.

4. Applicant is required, in reply to this action, to elect a single species and a single sub-species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement may be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMANDA BARROW whose telephone number is (571)270-7867. The examiner can normally be reached on 7:30am-5pm EST. Monday-Friday, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sines can be reached on 571-272-1263. The fax phone number for the organization where this application or proceeding is assigned is 571-272-1295.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AMANDA BARROW/  
Examiner, Art Unit 1795

/Dah-Wei D. Yuan/  
Supervisory Patent Examiner, Art Unit 1795